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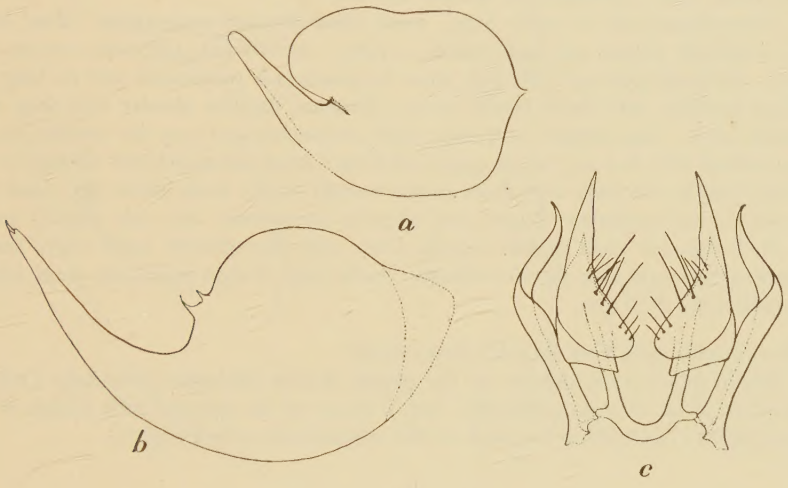
SOME EMPIDIDAE (DIPTERA) FROM SYRIA AND ASIA MINOR. PART 2

By J. E. Collin, F.R.E.S.

With Figures 5–7.

Hilara kervillei sp. n. ♂♀.

A small black dark-legged species with black halteres having dull black frons, thorax not striped and with biserial acrostichals, easily distinguished in male by its long-haired hind legs, even first joint of hind tarsi distinctly pilose above.



5

Fig. 5.—Details of male genitalia of *Hilara kervillei* sp. n. a = side lamella. b = Ventral lamella. c = Upper lamellae and internal paired processes.

♂. Antennae and palpi black, former with stout style three-quarters length of third joint, latter with very strong bristles near tip beneath as well as other dark hairs. Frontal pair of bristles close together and almost as long as ocellar pair. Thorax black with bluish-grey sheen when viewed from in front, more shining from side or behind. Biserial acrostichals and uniserial dorso-centrals of moderate length, the latter longer behind, a humeral, intrahumeral, posthumeral, 3 notopleural, 1–2 supra-alar, a postalar, and 4 scutellar bristles. Prothoracic collar with a pair of bristles and a few short hairs, extreme sides of prosternum with only a few very small fine hairs, episterna with 1–2 short hairs. Abdomen with dull brownish sheen seen from above, but blacker and faintly shining seen from behind. Venter dull brownish-grey with very short dark hairs. Pubescence of tergites rather conspicuous and dark, hindmarginal bristles long and distinct with several

similar bristles each side of small hypopygium arising from hind margin of last sternite. Legs black slightly dusted greyish and sometimes with a translucently reddish-brown tinge especially on front coxae, knees always narrowly reddish-yellow especially on four anterior pairs. Front femora short-haired; front tibiae with a pair of long bristles at tip above preceded by 2–3 successively shorter bristles, also a short apical bristle behind and beneath; basal joint of front tarsi considerably dilated, very elongate ovate, about $\frac{2}{3}$ length of tibia and as long as other four joints together, short-haired except for some longer hairs above, other joints longer than broad. Middle femora with an antero-ventral row of long bristly hairs, and 5–6 still longer bristles in front, much shorter-haired postero-ventrally; middle tibiae with only antero-ventral bristles (3–4) and 3–4 round tip; basal joint of middle tarsi slender and short-haired. Hind femora with antero-ventral row of long bristles, the 5–6 on apical half particularly long and strong; hind tibiae with a row of fine bristly hairs above becoming longer towards tip, and an antero-ventral row of 6–7 shorter bristles, comb at tip behind with a long bristly hair at middle; basal joint of hind tarsi slender and with a fringe of long fine hairs above. Wings almost clear with subcostal vein strongly dilated for some distance at end, below which lies the elongate brownish stigma. Cubital fork very long and narrow, its base opposite a point nearer end of subcostal, than end of radial, vein. Squamae and halteres blackish.

♀. Resembling male in colour only; much shorter-haired everywhere. Head bristles shorter especially frontal pair and bristles on palpi. Acrostichals and dorso-centrals much shorter. Abdomen pointed with very short inconspicuous pubescence and no long hind-marginal bristles—only short bristly hairs; terminal papillae slender and only microscopically hairy. Legs slender, with very short pubescence and very few bristles, on front tibiae confined to a few very short ones round tip; some inconspicuous bristles in front of middle femora but only very short antero-ventral bristly hairs before tip; hind tibiae only slightly and uniformly dilated and laterally compressed, and only slightly concave for a short distance about middle behind, a few very short bristly hairs above and still shorter inconspicuous ones antero-ventrally; basal joint of hind tarsi quite short-haired.

Length about 3·25 mm.

Four males and four females from Syria.

I would place this species in the group which includes *brevistyla* Coll. and *longevittata* Zett. (*bivittata* Strobl), but I know of no species with which it need be compared if attention be paid to the characters noted above.

Hilara megalochira sp. n. ♂♀.

A black, dark-legged species with black frons and halteres; thorax dusted brownish, not striped, and with quadriserial acrostichals; first joint of male front tarsi very large, hind tibiae of female very much dilated except at base and tip.

♂. Antennae and palpi black, latter with strong bristles below, a pair of strong bristles as well as short hairs on frons, hairs on occiput black. Thorax quite black seen from behind, but conspicuously dusted brown or brownish-grey seen from side or in front. Dorso-centrals uniserial but spreading out into an intrahumeral patch in front and ending behind in a strong prescutellar pair, otherwise rather short and fine similar to acrostichals; humeral and intrahumeral fine and indistinct, posthumeral and supra-alar slightly stronger, at least two of the three notopleural and a postalar more distinct; 4–6 scutellar bristles. Prothoracic collar with a pair of short strong bristles, episterna with a few fine hairs, whole of prosternum with fine dark hairs.

Abdomen slightly dusted brownish-grey but blacker and slightly shining seen from

behind. Pubescence all dark and hindmarginal bristles by no means strong. Genitalia distinctive (fig. 6). Legs black dusted with grey, only front knee-joints narrowly yellowish. Front femora comparatively short-haired; middle and hind femora with antero-ventral row of longer hairs, those on hind femora longer and stronger towards tip, these femora also hairy above (shorter towards tip). Front tibiae slightly shorter than femora and somewhat thickened, hairy behind with hairs becoming longer and more bristly towards tip; basal joint of front tarsi very large and much dilated, ovate (smaller towards tip), almost as long as tibia with a fringe of short fine hairs above; next three joints short, hardly longer than broad, 2nd joint with 1–2 longer hairs at tip above. Middle tibiae with

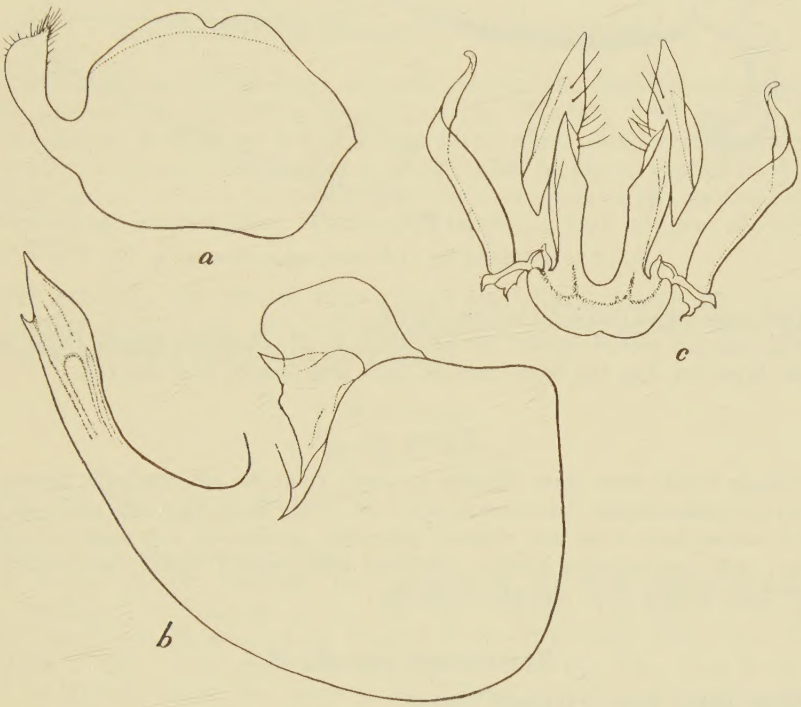


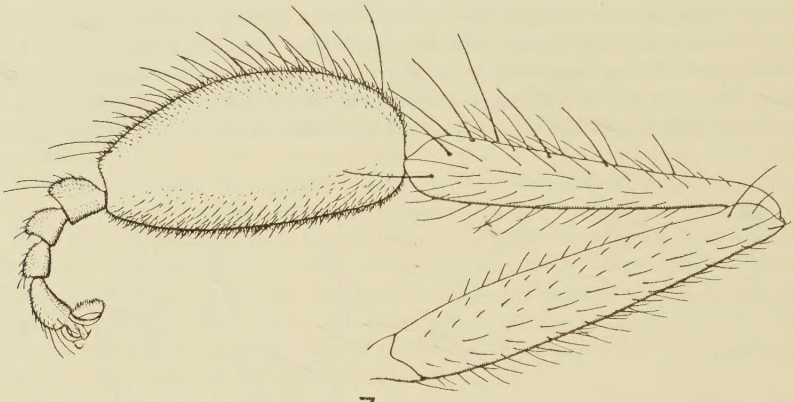
Fig. 6.—Details of male genitalia of *Hilara megalochira* sp. n. a = side lamella. b = Ventral lamella. c = Upper lamellae and internal paired processes.

1–2 short antero-ventral bristles and one postero-ventral in addition to small bristles round tip. Hind tibiae short-haired above and beneath, and with an antero-ventral row of 4–5 short bristly hairs, a distinct bristle at middle of apical comb behind. Wings faintly brownish with elongate brown stigma beneath end of subcostal vein, cubital fork long and bell-mouthed. Squamae darkened. Halteres blackish.

♀. Resembling male, but abdomen pointed behind, sixth and seventh segments more greyish, hindmarginal bristly hairs very inconspicuous. Legs shorter-haired and front legs simple, but hind tibiae very stout and spindle-shaped, a little curved outwards in front, and flattened and concave behind, the antero-ventral bristles very small and almost hidden in pubescence; front tibiae without distinct bristles; middle tibiae slender and

with very tiny bristles; basal joint of hind tarsi with a row of 4–5 very small antero-ventral spines.

Length about 4·25 mm.



7

Fig. 7.—Left front leg of *Hilara megalochira* sp. n.

Two males and one female from Syria.

This species would appear to be allied to *H. fusitibia* Strobl from Spain, which, however, has the front tarsi of male less dilated and shorter.

Hilara sp. ♀.

A single female from Syria differing primarily from the last species in having hind tibiae not spindle-shaped—less dilated and more evenly so to tip; pubescence on lower part of occiput front coxae and abdomen yellowish; acrostichals and dorso-centrals still shorter; only four scutellar bristles; abdomen more densely dusted; prosternum with shorter hairs at sides only; legs shorter-haired.

Hydrodromia stagnalis Hal.

Three males from "Damas," Syria.

CHANGES IN THE GENOTYPES OF, OR IN THE PRIORITY TO BE ACCORDED TO, ELEVEN GENERA OF LEPIDOPTERA, RHOPALOCERA, CONSEQUENT UPON THE DETERMINATION OF THE DATES OF PUBLICATION OF THE ENTOMOLOGICAL WORKS OF JACOB HÜBNER

By Francis Hemming, C.B.E., F.R.E.S.

The determination of the dates of publication of the entomological works of Jacob Hübner (in my *Hübner*, published in February 1937 by the Royal Entomological Society of London) has shown that changes are required in the genotypes of, or in the priority to be accorded to, eleven genera established by that author. It is fortunate that the changes involved do not displace any well-established names. Particulars regarding each of these changes are given below :—

A. SIX GENERA OF WHICH THE GENOTYPES REQUIRE TO BE CHANGED AS THE RESULT OF THE DETERMINATION OF THE DATES OF PUBLICATION OF THE NAMES IN QUESTION.

Satyridae.

1. *Mycalesis* Hübner.

Hübner, 1818, *Zutr. z. Samml. exot. Schmett.* **1** : 17.
id., [1819], *Verz. bek. Schmett.* (4) : 55.

Type : *Papilio francisca* Stoll, 1780.

If, as has hitherto (wrongly) been considered, the name *Mycalesis* had first been published by Hübner in the *Verz. bek. Schmett.*, the type of this genus would have been *Papilio evadne* Cramer, 1779 (Hemming, 1934, *Gen. Names hol. Butt.* **1** : 29). That species cannot, however, be the type, since it was not cited by Hübner under this name in the *Zuträge*, in which, it is now seen, the name *Mycalesis* was first published. The only species cited on that occasion were *Mycalesis otrea* Hübner, 1818, and *Papilio francisca* Stoll, 1780. Of these, I have above selected the latter as the type of this genus. No change is involved in the generally accepted use of this generic name.

2. *Ypthima* Hübner.

Hübner, 1818, *Zutr. z. Samml. exot. Schmett.* **1** : 17.
id., [1819], *Verz. bek. Schmett.* (4) : 63.

Type : *Ypthima philomela* Hübner, 1818 (= *Papilio philomela* Linnaeus, 1763).

Hitherto it has been wrongly assumed that this name was first published by Hübner in the *Verz. bek. Schmett.* In that event, the type would have been *Papilio philomela* Hübner, 1818 (*see* Hemming, 1934, *Gen. Names hol. Butt.* **1** : 45). Fortunately that species remains the type, since it is the only species given by Hübner, when in the *Zuträge* he first published this name.

3. *Euptychia* Hübner.

Hübner, 1818, *Zutr. z. Samml. exot. Schmett.* **1** : 20.
id., [1819], *Verz. bek. Schmett.* (4) : 54.

Type : *Euptychia mollina* Hübner, 1818.

Hitherto it has been wrongly assumed that this name was first published in the *Verz. bek. Schmett.*, but it is now seen that in fact it was published first in the *Zuträge*. On the assumption that it was first published in the *Verz. bek. Schmett.*, the type of this genus would have been *Papilio herse* Cramer, 1775 (*see* Hemming, 1934, *Gen. Names hol. Butt.* **1** : 46), but that species cannot now be the type, since it was not cited under this name by Hübner in the *Zuträge*. The only species there cited were *Euptychia mollina* Hübner, 1818, and *Papilio lydia* Cramer, 1777. Of these, I have above selected the former as the type of this genus. No change is involved in the generally accepted use of this generic name.

4. *Neonympha* Hübner.

Hübner, 1818, *Zutr. z. Samml. exot. Schmett.* **1** : 8.
id., [1819], *Verz. bek. Schmett.* (5) : 65.

Type : *Papilio areolatus* Smith, 1797.

Hitherto it has been wrongly assumed that this name was first published in the *Verz. bek. Schmett.*, in which event the type of this genus would have been *Neonympha helicta* Hübner, [1819], a synonym of *Papilio areolatus* Smith, 1797 (*see* Hemming, 1934, *Gen. Names hol. Butt.* **1** : 47). In the *Zuträge*, Hübner used this name for *Neonympha gemma* Hübner, 1818, and *Papilio areolatus* Smith, 1797. The last-named species remains, therefore, the type of this genus.

Nymphalidae.

5. *Hypanartia* Hübner.

Hübner, [1821], *Samml. exot. Schmett.* **2** pl. [26].
id., [1823], *ibid.* **2** pl. [25], [27].

Type : *Hypanartia demonica* Hübner, [1821], (= *Papilio lethe* Fabricius, 1793).

Hitherto it has been wrongly assumed that plates [25] to [27] of the second vol. of Hübner's *Samml. exot. Schmett.* were published simultaneously. On this basis, the type of this genus would have been *Hypanartia tecmesia* Hübner, [1823] (*see* Hemming, 1934, *Gen. Names hol. Butt.* **1** : 72). Now that it is known that pl. [26] was published two years before pls. [25] and [27], the type of *Hypanartia* automatically becomes *Hypanartia demonica* Hübner, the only species figured on pl. [26]. No change is involved in the generally accepted use of this generic name.

6. *Symphaedra* Hübner.

Hübner, 1818, *Zutr. z. Samml. exot. Schmett.* **1** : 7.
id., [1819], *Verz. bek. Schmett.* (3) : 40.

Type : *Najas alcandra* Hübner, 1808 (= *Papilio nais* Forster, 1771).

If, as has hitherto (wrongly) been assumed, this name had been first published in the *Verz. bek. Schmett.*, its type would have been *Najas alcandra* Hübner, 1808 (*see* Hemming, 1934, *Gen. Names hol. Butt.* **1** : 94). Since, however, it was first published in the *Zuträge*, the type must be one of the two

species there cited under this name. Fortunately, one of these species was *Najas alcandra* Hübner, which, therefore, remains the type.

2. The name *alcandra* has hitherto been regarded as having been first used for this species by Hübner in the *Verz. bek. Schmett.*, where it was cited as *Symphaedra alcandra*. It is now seen that one year earlier (in 1818) it was cited under this name by Hübner in the *Zuträge*. It has, however, been completely overlooked that this name was first published with a valid description as far back as 1808, when Hübner published it as *Najas alcandra* Hübner, 1808 (*Erste Zuträge* : [3], 7). For a facsimile of Hübner's *Erste Zuträge*, *see* Hemming, 1937, *Hübner* **1** : 443–450.

B. FOUR GENERIC NAMES WHICH REQUIRE TO BE BROUGHT BACK INTO USE AS THE RESULT OF THE DETERMINATION OF THE DATES OF PUBLICATION OF JACOB HÜBNER'S ENTOMOLOGICAL WORKS.

Nymphalidae.

1. *Marpesia* Hübner.

Hübner, 1818, *Zutr. z. Samml. exot. Schmett.* **1** : 32.
id., [1819], *Verz. bek. Schmett.* (3) : 47.

Type : *Marpesia eleuchea* Hübner, 1818 (= *Papilio petreus* Cramer, 1776, ssp.).

Athena Hübner.

Hübner, [1819], *Verz. bek. Schmett.* (3) : 36.

Type : *Papilio thetys* Fabricius, 1777 (= *Papilio petreus* Cramer, 1776).

Hitherto it has been wrongly supposed that the name *Marpesia* Hübner was first published by Hübner in the *Verz. bek. Schmett.*, its type being on that assumption *Marpesia eleuchea* Hübner, [1819] (*see* Hemming, 1934, *Gen. Names hol. Butt.* **1** : 80). It is now seen, however, that it was first published in the *Zuträge*. No change of type is involved, since *Marpesia eleuchea* Hübner (of which the date is now seen to be 1818) was also cited in the *Zuträge*.

2. When it was thought that the name *Marpesia* Hübner was first published in the *Verz. bek. Schmett.*, it was seen (Hemming, 1934, *ibid.* **1** : 80) that *Marpesia* Hübner fell as a synonym of *Athena* Hübner, which had page priority, and of which the same species was the type. Now, however, that it is known that the name *Marpesia* Hübner was first published in 1818, it is seen that it has a year's priority over *Athena* Hübner, and should, therefore, be restored to use.

Pieridae.

2. *Anaphaeis* Hübner.

Hübner, [1819], *Verz. bek. Schmett.* (6) : 93.
Hemming, 1934, *Gen. Names hol. Butt.* **1** : 127.

Type : *Papilio creona* Cramer, 1776.

Glycestha Billberg.

Billberg, 1820, *Enum. Ins.* : 76.
Hemming, 1934, *Gen. Names hol. Butt.* **1** : 127.

Type : *Papilio coronea* Cramer, 1775 (= *Papilio java* Linnaeus, 1767).

Hitherto it has been considered that *Glycestha* Billberg, being published in 1820, had priority over *Anaphaeis* Hübner, which has been (wrongly) considered as having been published in 1823. It is now seen that *Anaphaeis* was in fact published in 1819 and, therefore, has a year's priority over *Glycestha* Billberg, which thus falls as a synonym.

3. *Eurema* Hübner.

Hübner, [1819], *Verz. bek. Schmett.* (6) : 96.
Hemming, 1934, *Gen. Names hol. Butt.* **1** : 135.

Type : *Eurema demoditas* Hübner, [1819] (= *Pieris daira* Godart, 1819).

Terias Swainson.

Swainson, 1821, *Zool. Illust.* (1) **1** pl. 22.

Type : *Papilio hecabe* Linnaeus, 1758.

Hitherto it has been considered that *Terias* Swainson, being published in 1821, had priority over *Eurema* Hübner, which has been (wrongly) considered as having been published in 1823. It is now seen that *Eurema* Hübner was in fact published in 1819 and therefore has two years' priority over *Terias* Swainson, which thus falls as a synonym.

Hesperiidae.

4. *Thymelicus* Hübner.

Hübner, [1819], *Verz. bek. Schmett.* (8) : 113.
Hemming, 1934, *Gen. Names hol. Butt.* **1** : 170.

Type : *Papilio acteon* Rottemburg, 1775.

Adopoea Billberg.

Billberg, 1820, *Enum. Ins.* : 81.
Hemming, 1934, *Gen. Names hol. Butt.* **1** : 169.

Type : *Papilio linea* [Denis & Schiffermüller], 1775 (=*Papilio sylvestris* Poda, 1761).

Hitherto it has been considered that *Adopoea* Billberg, being published in 1820, had priority over *Thymelicus* Hübner, which has been (wrongly) considered as having been published in 1823. It is now seen that *Thymelicus* Hübner was in fact published in 1819 and therefore has a year's priority over *Adopoea* Billberg, which thus falls as a synonym.

C. A GENERIC NAME PUBLISHED BY JACOB HÜBNER, WHICH IS NOW FOUND TO BE A SYNONYM OF A GENERIC NAME PUBLISHED BY FABRICIUS IN THE SAME YEAR.

Satyridae.

Haetera Fabricius.

Fabricius, 1807, *Mag. f. Insektenk.* (Illiger) **6** : 284.

Type : *Papilio piera* Linnaeus, 1758.

Oreas Hübner.

Hübner, [1807, 2nd January–22nd December], *Samml. exot. Schmett.* **1** pl. [82].

Type : *Oreas dubia piera* Hübner, [1807] (= *Papilio piera* Linnaeus, 1758).

Hitherto it has been wrongly supposed that pls. [82] to [96] of the first volume of Hübner's *Samml. exot. Schmett.* were published simultaneously, and, therefore, that *Papilio europa* Fabricius, 1775, was the type of *Oreas* Hübner (*see* Hemming, 1934, *Gen. Names hol. Butt.* **1** : 30). From the inadequate information hitherto available, it had been thought that *Oreas* Hübner was a homonym of *Oreas* Denys de Montfort, 1808, and therefore, having regard to its (then supposed) type, that it fell as a synonym of *Lethe* Hübner, [1819]. It is now seen, however, that the name *Oreas* Hübner was first published in 1807 (on pl. [82]), and that the type of this genus is *Oreas dubia piera* Hübner, the only species then published. It follows from this that *Oreas* Hübner is no longer to be regarded as a homonym of *Oreas* Denys de Montfort, and also that it has no connection with *Lethe* Hübner.

2. It is now seen that, as shown above, the same species, *Papilio piera* Linnaeus, is the type both of *Oreas* Hübner, [1807], and of *Haetera* Fabricius, 1807. It is necessary, therefore, to consider which of these names, both of which were published in the same year, has priority over the other. Fortunately, this question is easily answered. In 1934, I made a proposal in connection with the names *Morpho* Fabricius, 1807, and *Potamis* Hübner, [1807] (Hemming, 1934, *Gen. Names hol. Butt.* **1** : 48–50) that the International Commission on Zoological Nomenclature should agree upon an Opinion declaring that the generic names proposed by Fabricius in 1807 (*Mag. f. Insektenk.* (Illiger) **6** : 279–289) should be deemed to have been published prior to certain names (including *Potamis* Hübner) which were known to have been published in the same year. This proposal was approved by the International Commission at its meeting in September 1935 at the International Zoological Congress held at Lisbon (see paragraph 19 of the Report submitted to the Congress by the Commission on that occasion). The actual wording employed by the Commission in this connection was as follows :—

> " Unless and until further evidence is forthcoming regarding the precise dates in 1807 on which were published (*a*) Fabricius's paper on generic names in the sixth volume of Illiger's *Magazin für Insektenkunde* and (*b*) certain plates of Hübner's *Sammlung exotischer Schmetterlinge*, the names proposed by Fabricius shall have precedence over those proposed by Hübner."

This ruling applies exactly to the names *Haetera* Fabricius, 1807, and *Oreas* Hübner, [1807]. It follows, therefore, that *Oreas* Hübner is a synonym of *Haetera* Fabricius, the same species being the type of both genera.

DESCRIPTIONS OF NEW GENERA AND SPECIES OF FOSSIL SALTATORIA (ORTHOPTERA)

By Friedrich E. Zeuner, London.

Communicated by Dr. O. W. Richards, F.R.E.S.

In the course of my investigations on fossil Orthoptera, I have met with a number of hitherto undescribed, but nevertheless important, forms which are recorded in the following lines.

The Order Saltatoria has to be subdivided into the suborders Ensifera and Acridioidea which both can be traced back as far as the Carboniferous. The Ensifera comprise the "long-horned grasshoppers," or "catydids" (families Gryllacrididae, Prophalangopsidae, Gryllidae, Gryllotalpidae, Tettigoniidae), whilst the extinct Locustopsidae (together with Elcaninae), the Tridactylidae and Cylindrachetidae, the Tetrigidae and the Acrididae constitute the Suborder Acridioidea.

Gryllacrididae.

Jurassobatea gen. n.

Venation of fore-wings similar to *Palaeorehnia* Cockerell, but cross-veins of the basal cubital region very regular, close, and at an angle of 45–60° to the longitudinal veins. Hing-wing with branched M; MP present.

Genotype: *Jurassobatea gryllacroides* sp. n.

Remarks: From the Upper Jurassic of Bavaria. Belongs to the subfamily **Palaeorehniinae** subfam. n. (typical genus *Palaeorehnia* Cockerell from the Miocene of Colorado). Earliest and most primitive Gryllacridid known. The genus is dedicated to Miss Dorothea M. A. Bate of the British Museum (Natural History), the well-known authority on the mammalian faunas of the Mediterranean region.

Jurassobatea gryllacroides sp. n.

Hind femur about 24 mm. long, hind-wings about 47 mm. long.

Type: British Museum (Nat. Hist.), Haeberlein Coll., Nr. In. 31990.

Remarks: From the famous Solnhofen slates of Upper Jurassic age. Bavaria.

Prophalangopsidae.

Geinitzia carpentieri sp. n.

Allied to *Geinitzia fasciata* (Bode), but smaller (about 23 mm. long). MA_1 with terminal fork. CuA_2 not undulated.

Type: British Museum (Nat. Hist.), Brodie Coll., Nr. In. 36200.

Remarks : Fore-wing, with counterpart, from the Upper Lias of Dumbleton near Winchcomb, Gloucestershire. This is the first British species of the genus, other species of which are more frequent in the German Liassic. The species is dedicated to Dr. F. Carpentier, the eminent insect anatomist of Liége, Belgium. The genus *Geinitzia* should form a subfamily (**Geinitziinae** subf. n.) of the PROPHALANGOPSIDAE, so long as no better place can be assigned to it. It is nearly related to the Prophalangopsids, but up to the present, no wings with a stridulating organ have been found.

GRYLLIDAE.

Protogryllus Handlirsch 1906.

This genus contains most of the Jurassic crickets and forms together with *Mesogryllus* Handlirsch and *Archaegryllodes* Haughton a well-defined subfamily (**Protogryllinae** subf. n.) comprising all the Mesozoic members of the family. PROTOGRYLLINAE have a distinct harp in the male elytron but the mirror is yet undeveloped.

Protogryllus parallelus sp. n.

Female fore-wing with *Sc*, *R*, *M*, and *Cu* parallel through nearly the whole length of the wing. Median fan small or missing. Length about 14 mm.

Type : British Museum (Nat. Hist.), Brodie Coll., Nr. I. 10581.
Paratypes : same Coll. I. 10590 and I. 10573.
Remarks : These female elytra come from the Lower Liassic of Binton, Warwickshire (type and one paratype), and Brown's Wood, Warwickshire (one paratype).

Protogryllus magnus sp. n.

Male fore-wing elongated and oval, about 22 mm. long. Terminal portion of *CuP* slightly undulated. Cu_n leaving *Cu* near *CuP*.

Type : British Museum (Nat. Hist.), Brodie Coll., Nr. I. 11324.
Paratype : Same Coll., Nr. I. 10574.
Remarks : From the Upper Lias of Dumbleton, Gloucestershire (type), and from the Lower Lias of Binton, Warwickshire (paratype).

Protogryllus grandis sp. n.

? 1884. Cf. *Hagla* (*Chauliodes*) *similis* Giebel : Geinitz, *Z. deuts. geol. Ges.*, **36** : 576.

Female fore-wing resembling *Pr. parallelus* sp. n., but of about twice the size. Basal branch of *Cu* fused with the anterior prong of the fork of *1A*. Median fan deeper than in *Pr. parallelus*.

Type : British Museum (Nat. Hist.), Brodie Coll., Nr. I. 10530.
Remarks : From the Lower Lias of Strensham, Worcestershire. The specimens I. 10600 (Lower Lias of Brown's Wood, Warwickshire) and I. 10663 with counterpart I. 10643 (Lower Lias of Forthampton, Gloucestershire) in the same collection are somewhat smaller than the type (16 instead of 20 mm.). They possibly belong to this species.

Gryllus schindewolfi sp. n.

Closely allied to Recent *Gryllus bimaculatus* de Geer, but smaller, *CuP* weaker, yellow spot at the base larger and somewhat extended along the secondary *Cu*. 13·2 mm. long.

Type : British Museum (Nat. Hist.), Gurnet Bay Coll., Nr. In. 24774.

Remarks : From the Middle Oligocene of Gurnet Bay, Isle of Wight. The colours are beautifully preserved, the basis being yellowish-brown, the rest of the wing brownish-black. The species is dedicated to Professor O. H. Schindewolf, of Berlin, the palaeontologist of the Prussian Geological Survey, well known for his important work on the laws of phylogeny.

Pteronemobius (?) anglicus sp. n.

Female elytron a little over 4 mm. long, and 2·3 mm. broad. Longitudinal veins very thick. *Sc* and *R* diverging in the apex. *Cu* thickened.

Type : British Museum (Nat. Hist.), Gurnet Bay Coll., Nr. In. 24778.

Remarks : From the Middle Oligocene of Gurnet Bay, Isle of Wight. There are no differences of any importance from the female elytra of *Pteronemobius* Jacobson. Those given above cannot be of more than specific value. Owing to the fact, however, that the venation is greatly reduced, it is not impossible that other genera with a similarly reduced venation have acquired elytra of the same structure as those of *Pteronemobius*.

Eneopterotrypus gen. n.

Eneopterine genus with a very wide median fan and with two cross-veins in the mirror. In the structure of the male elytron intermediate between *Eneoptera* Burm. and *Heterotrypus* Sauss.

Genotype : *Eneopterotrypus chopardi* sp. n.

Remarks : From the Middle Oligocene of Gurnet Bay, Isle of Wight. The genus obviously belongs to the Eneopterinae, which hitherto have not been recorded as fossils, since the terminal bows of 1*A* and 2*A* are typically Eneopterine, the median fan is widely open, and there is a dark zone between *Sc* and *R*. The elytron is shorter and broader than in *Eneoptera*, but less so than in *Heterotrypus*. With the latter genus it agrees in having two cross-veins in the mirror.

Eneopterotrypus chopardi sp. n.

Length about 10–11 mm., width between *Sc* and hind margin 4·6 mm.

Type : British Museum (Nat. Hist.), Gurnet Bay Coll., Nr. I. 8855.

Remarks : Preserved length 8 mm., including the mirror. Apex missing. The specimen shows well the original colours. The species is dedicated to Dr. L. Chopard, of Paris, the authority on Recent Gryllidae.

Gryllotalpidae.

Neocurtilla schmidtgeni sp. n.

Femoral spur of fore leg bluntly pointed, and with both edges convex.

Type : Naturhistorisches Museum, Mainz, Germany, Hydrobienkalk Coll., Nr. 122.

Remarks : This is a single fore leg, beautifully preserved. It comes from the Lower Miocene (Aquitanian) of Dyckerhoff's quarry, near Mainz-Castel, west Germany. The femur is 6 mm. long. Though a *Neocurtilla*, the species approaches *Gryllotalpa* in the almost symmetrically convex edges of the femoral spur. The species is dedicated to Professor O. Schmidtgen, Director of the Naturhistorisches Museum, Mainz, who carried out successful excavations in the "Hydrobienkalk," the horizon from which the fossil was obtained together with numerous other insects.

Tettigoniidae.

Pseudotettigonia gen. n.

Fore-wing with a venation as in primitive Tettigoniinae, Saginae or Decticinae, but with dark, angulated cross-bands. Costal area narrow.

Genotype : *Tettigonia amoena* Henriksen 1929, *Medd. dansk geol. Foren.*, **7** : 317–320, fig. 1–2.

Remarks : From the Lower Eocene of the Isle of Fuur, Denmark. It is impossible to retain the species described by Henriksen within the genus *Tettigonia* L. The venation has primitive features in the cross-venation which is more regular than in *Tettigonia*, and the pattern of the wing is quite peculiar and not found in any living Tettigoniidae.

Arctolocusta gen. n.

Female fore-wing with a narrow costal, and a broad anal, area. *C* comparatively long, *M* very straight, *MP* + *CuA* continued along the hind margin. Anals distinct and regular, four in number, the first one close to the basis of *Cu*.

Genotype : *Locusta grönlandica* Heer, *Flora foss. grönlandica*, **2** : 146–147, pl. 109, fig. 11a, b.

Remarks : From the Eocene of Greenland. The venation looks primitive and combines characters of certain Phaneropterinae and Tettigoniinae. For the present, it cannot be placed in any of the existing subfamilies.

Locustopsidae.

Conocephalites capito (Deichmüller).

1886. *Conocephalus capito* Deichmüller, *Mitt. min.-geol. Mus. Dresden*, **7** : 24, pl. 2, fig. 12.
1906. *Conocephalites capito*, Deichmüller : Handlirsch, *Handb. foss. Insekten*, : 519, pl. 44, fig. 4.

Remarks : Although this species was named long ago, it is worth mention here. I found the counterpart of the type in the Haeberlein Coll. of the British Museum (Nat. Hist.) (Nr. In. 36201). To my surprise it proved to be much better preserved than the earlier authors supposed. The venation is undoubtedly of the Locustopsid type, *M* being free from *Rs*. *M* appears to be a simple fork. It is, however, most remarkable that in spite of this Locustopsid venation there are broadened spines on the hind tibiae, as these are characteristic of the Elcaninae. *Conocephalites capito* is thus clearly intermediate between the two groups which I propose to henceforth consider as two subfamilies of the family Locustopsidae.

TETRIGIDAE.

Acrydium (s.l.) **bachofeni** sp. n.

Male in shape reminiscent of Recent *A. subulatum* Thunberg, but larger, about 16 mm. long. Pronotal spine blunt. Elytra longer than in any Recent species, 5 mm.

Type: Coll. A. von Bachofen-Echt, Mödling near Vienna, Nr. 150.

Remarks: This adult male comes from the east Prussian amber which is of Lower Oligocene age. It is well preserved with appendages. Only the left side is covered with emulsion. The long elytra are very unusual, and probably primitive. Vertex less acute, head more rounded, front more vertical than in *A. subulatum*. The pronotal spine has a rounded tip (pointed in *A. subulatum*). Another specimen of the same genus is preserved in the Geological Institute of the University of Berlin (Coll. Kühl, box 31). It is also a male but only 11·5 mm. long. The pronotal spine is pointed. It is certainly specifically different from *A. bachofeni*, but since it is less well preserved, it is hardly possible to arrive at a diagnosis separating it from other species of *Acrydium*. *A. bachofeni* is dedicated to Baron A. von Bachofen-Echt, Mödling and Vienna, the well-known collector of amber insects.

Proschistocerca gen. n.

Costal area of the fore-wing rapidly becoming narrow beyond the first branching of Rs, subcostal area more widened instead.

Genotype: *Proschistocerca oligocaenica* sp. n.

Remarks: The genus doubtless belongs to the CATANTOPINAE, and most probably to the tribe Cyrtacanthacrini, where it shows close affinities to the venation of *Cyrtacanthacris*, *Anacridium*, *Ornithacris*, *Nomadacris*, and *Schistocerca* Stål. With *Schistocerca*, in particular, the fossil agrees in every detail of the venation and also in the general pattern, the only difference being the one given in the diagnosis. The whole pre-radial part of the wing is narrower than in the other mentioned genera, in spite of its considerable size.

Proschistocerca oligocaenica sp. n.

Length of fore-wing approximately 72 mm., maximum width 12·5 mm. Pattern brown spots, irregularly arranged in cross-bands.

Type: British Museum (Nat. Hist.), Gurnet Bay Coll., Nr. In. 24578 (fore-wing).

Paratypes: Same Coll., Nrs. In. 17339, 24587, 8799, 25728, 8633, 20527, 24782, 17342 (parts of fore-wings), and Nrs. In. 17406, 17407 (parts of hind-wings).

Remarks: 48 mm. of the type specimen are preserved, apex and basis being broken off. Yet the preserved part shows the distal half of the discoidal cell, the branches of *M* and *Cu*, and most of the *Rs*, as well as *R*, *Sc* and *C*. The other specimens are rather poor, showing merely small pieces of the wing. In. 20527 is slightly broader than the type, 13 mm. The venation of the hind-wings cannot be distinguished from that of Recent *Schistocerca*, though one has to admit that it hardly varies at all in Recent genera of that group.

All specimens come from Gurnet Bay, near Cowes, Isle of Wight. The stratum is the " Insect Limestone," lower part of the Bembridge Marls, Middle Oligocene.

Heeracris gen. n.

Large Acridid with fully developed wings. Fore-wing with fairly straight fore margin, an open discoidal cell, and a three-branched *Cu* with the middle branch carrying a secondary fork.

Genotype : *Acridium oeningense* Scudder, *Geol. Mag.*, (4) 2 : 118, pl. 6, fig. 2.

Remarks : This is a peculiar genus. The discoidal cell is open, but the first branch of *Cu* is strongly bent upwards near its base as is often observed in forms with a closed cell. This would suggest that the cell is actually a closed one and that the basal portion of the closing branch of *M* has become obliterated. In such cases, which do occur in Recent forms, however, the median branch is separated from the first cubital branch more distally, but in the fossil there is merely one simple vein. Instead of this, the second branch of *Cu* shows a fork. The fossil is certainly no "*Acridium*" and probably does not belong to the Cyrtacanthacrini at all, though it is likely to be related to either Catantopinae or Oedipodinae.

The genus is dedicated to the memory of the first great palaeoentomologist and palaeobiologist, Oswald Heer of Zürich.

The only species of the genus, *H. oeningensis* (Scudder), comes from the Upper Miocene (Sarmatian) of Oeningen near Lake Constance, Baden, Germany. The type is in the Lacoe Coll., Pittston, Penn., U.S.A.

TWO NEW INJURIOUS PHYTOPHAGA FROM EAST AFRICA (COLEOPT.)

By G. E. Bryant, F.R.E.S.

(*Entomologist, Imperial Institute of Entomology*).

Eumolpinae.

Menius gossypii sp. n.

Ovate, convex, dark brassy green nitid, antennae, palpi and legs fulvous, the femora and apical segments of the antennae slightly fuscous, the four posterior femora feebly toothed. L. 3 mm.

Head dark brassy green, finely punctured, more rugosely in front, a deep transverse impression between the eyes and a short longitudinal median sulcus behind. Antennae fulvous, the five apical segments slightly fuscous, the basal segment more dilated than the remainder, the second segment the longest, the remainder about equal to each other, extending a little beyond the base of the elytra. Prothorax transverse, convex, slightly narrowed in front, dark brassy green nitid, strongly but not closely punctured, the punctures not extending to the sides. Scutellum dark brassy green, subtriangular, impunctate. Elytra dark brassy green, regularly and strongly punctate-striate, the intervals smooth and nitid, the shoulders somewhat prominent and impunctate. Legs fulvous with the femora tinged with fuscous, the four posterior tibiae notched at their apex. Underside darker, the ventral segments of the abdomen about equal and slightly shagreened.

Uganda : Kampala, 27.ii.1927, i.1937 (*H. Hargreaves*).
Type in the British Museum.

Feeding on bracts of cotton boll. Allied to *M. chalceatus* Lef., but smaller and more brassy, and the striae of the elytra not so strongly and closely punctured, and the intervals between the striae flatter.

Galerucinae.

Monolepta (Candezea) pruni sp. n.

Fulvous, the antennae and legs flavous, prothorax minutely punctured, elytra finely punctured, entirely black, or fulvous with a broad transverse black band at the base, and another narrower below the middle. L. 4 mm.

Of oblong shape, the head fulvous, the basal half finely punctured, impunctate between the eyes, the frontal elevation broadly trigonate. Antennae flavous, extending a little beyond the middle of the elytra, the basal segment the longest, about equal to the second and third together, the nine terminal segments about equal to each other, and more pubescent, the apical segment black. Prothorax transverse, widest at its base, narrowing slightly towards the front, fulvous and minutely punctured. Scutellum fulvous, triangular and impunctate. Elytra three times as long as the prothorax, entirely black, or fulvous with a broad transverse black band at the base, and another below the middle broken at the suture, the punctures slightly stronger and not so close as on the prothorax. Legs flavous, the first joint of the posterior tarsi longer than the three following together. Underside fulvous, the breast slightly tinged with fuscous, the ventral segments of the abdomen paler, the first ventral segment the longest, the three following about equal to each other, finely punctured and finely pubescent.

Uganda: Mitanda, 1.ii.1932, ix.1933 (*H. Hargreaves*). Reported feeding on the leaves of plum and apple.

Type in the British Museum.

Allied to *M. centromaculata* Jac., but a smaller species and lacking the black central band on the prothorax.

This will probably prove to be a variable species, the elytra being entirely black or fulvous with transverse black bands.

A NOTE ON THE CONFUSION OF *ONYCHOGOMPHUS BISTRIGATUS* (HAGEN) WITH A NEW SPECIES OF *ONYCHOGOMPHUS* (ODONATA)

By Lt.-Col. F. C. Fraser, I.M.S., Retd., F.R.E.S.

I am indebted to Dr. Erich Schmidt for calling my attention to a note made by the late Dr. F. Ris on the species *Onychogomphus bistrigatus* (Hagen), and to the authorities of the Senckenberg Museum and Naturforschende Gesellschaft for supplying me with a copy of this important note which is reproduced below.

It is unfortunate that Dr. Ris failed to publish this note, as he was the first to observe the extraordinary nomenclatorial confusion which had arisen as a result of Selys confusing an entirely new species with the *bistrigatus* of 1854.

The history and bibliography of *O. bistrigatus*, and of the species with which he confused it, is as follows :—

1854. *Gomphus bistrigatus* Hagen, 1854, *Syn. Gomph.* (sep) : 27. Selys described an incomplete female from India, in the Vienna Museum, from a communication made to him by Dr. Hagen. The description is undoubtedly abbreviated to conform with other descriptions in the same work, for Dr. Hagen's were usually very full. Thus the complicated markings of the thorax are dealt with in three words and only the head is at all well described. The important points to notice are that the costal nervure is finely *yellow*, the border of the labrum is *broadly*, and the back of the head *entirely black*. Lastly the male is said to be unknown.

1857. *Onychogomphus bistrigatus* Hagen, 1857, *Mon. Gomphines* : 24. Selys described a teneral female which he regarded as conspecific with *Gomphus bistrigatus* Hagen, and transferred the species to genus *Onychogomphus*. This description is very full and differs in many points from that of the type female. Like the type, this specimen was taken in India by Hügel and was also deposited in the Vienna Museum. The important characters to notice are the border of the labrum which is *very finely* black and the back of the eyes and head which are *yellow* with a narrow bordering only of black above. The costal nervure and some basal ones are *yellow*.

Following this description, Selys gave an amplification of the description of the type female of 1854, pointing out its differences from the specimen he described.

Following on this initial error of identification, comes a maze of others which are altogether inexplicable.

The costal nervure of the type is now given as black—" reticulation, *y compris la costale*, est noiratre." (The italics are Selys.) The back of the eyes is given as " tout noir." Then follows a most remarkable proposition :— " Si c'est une espèce distincte du *bistrigatus*, on peut le nommer *G. m-flavum* Kollar, nom sous lequel elle etait etiquetée." In effect, Selys proposed to employ the name of what was manifestly a type for another species and to substitute a new name for the type, a proceeding in which his collaborator, Dr. Hagen, apparently acquiesced.

Selys was doubtful as to the generic placing of the species and ends a

discussion with—" La connaissance du mâle decidera la question," yet if one turns to plate I, fig. 3 at the end of the Monograph, good figures of the male anal appendages are to be found, which are grouped with figures of the female genitalia of the described teneral female ! In the Synopsis it is stated that the male is unknown, but the date shown at the foot of this plate is " Hagen, 1854 " !

1857. *Onychogomphus bistrigatus* Hagen, 1857, *Mon. Gomphines* : 392. Here Selys published a description of the male sent to him by Dr. Hagen, who made it from two teneral males in the British Museum, examined in 1857. Their description is said to resemble the teneral female of the Monograph, but actually they are found to be conspecific with the adult female type of 1854. These two males may have furnished the figures of the anal appendages given in plate I of the Monograph, but it is difficult to reconcile this with the date given for the plate.

1894. *Onychogomphus m-flavum* Selys, 1894, Causeries Odonatologiques, No. 7, *C.R. Ann. Soc. ent. Belg.*, **38** : 169. In this paper Selys described a new species under the name of *O. m-flavum* and thus carried out his proposition of 1857 of renaming the type of *bistrigatus* which he says is conspecific with the present species. " Je pense que l'on peut attribuer a l'espèce que je decris aujourd'hui la femelle du Musee de Vienne recueille par M. de Hugel, que ce voyageur avait etiquetée *m-flavum* et que j'ai decrite dans la Monographie (*page* 25) à la suite de la femelle du *bistrigatus*." This new species has the venation, the back of the head and eyes and the labrum broadly black. The female is distinguished by a very long ovipositor and vulvar scale, quite different from the short subtriangular one found in the teneral female described and figured in the Monograph.

Subsequent writers, including myself, have perpetuated these errors ; thus :—

1907. *Onychogomphus bistrigatus* Williamson, 1907, *Proc. U.S. nat. Mus.*, **33** : 309. The author stated that the second (adult) female described in the Monograph as *bistrigatus* is actually *m-flavum*, but he made no remarks about the latter.

1922. *Onychogomphus m-flavum* Laidlaw, 1922, *Rec. Indian Mus.*, **24** : 410. The author remarked that the synonymy of *m-flavum* is obscure and left it at that. He considered that all the males so far described and attributed to *bistrigatus* actually belong to *m-flavum* and that the former is known only from the type female from India in the Vienna Museum, apparently overlooking the fact that both females are from India and both are deposited in the Vienna Museum. It seems, however, from his remarks that he regarded *m-flavum* as a valid name.

1934. *Onychogomphus m-flavum* Fraser, 1934, *Fauna British India, Odonata*, **2** : 250. In this work, the type female of 1854 is assumed to have yellow venation, since the costal nervure is given as yellow. The correction made in the Monograph is regarded as erroneous or it is supposed that another specimen is here being cited. Whatever may be the true facts, it is now impossible to say, since the original type is lost. Thus *bistrigatus* is here held to cover both the female type and the teneral female of 1857, whilst *m-flavum* includes the adult female described in 1857 and that of 1894, described in the Causeries.

Dr. Ris' unpublished note now completes the history :—

" (IX.11) *Onychogomphus bistrigatus*. 5 ♂, 2 ♀ Darjeeling, S. Gutmann—Museum Hamburg.

" Über die nomenklatorische Verwirrung siehe die Lit. Noten. Dies ist sicher das ♂ der Monographie 1857—Die Übereinstimmung der Appendices

mit Hagens Figur ist eine vollständige. Die ganz sicher zugehörenden ♀ sind aber nicht die Form, deren Valv. v. in der Monographie abgebildet ist. Wohl aber stimmt mit ihnen überein die Beschreibung der Valv. v. von *O. m-flavum* 1894.

"Nach dieser Beschreibung konnten die *m-flavum* 1894 ♂ sehr wohl die gleiche Form sein wie *bistrigatus* 1857 ♂.

"Nomenklatorisch entscheidend ist, was das ♀ (Mus. Wien) ohne terminale Segment war, nach dem 1854 *bistrigatus* zum ersten mal beschrieben ist. Ehe das ausgemacht werden kann, lasse ich das gut abgebildete ♂ von 1857 für die Benennung massgebend sein."

(Then follow descriptions of the male and female specimens cited above in the Hamburg Museum, which do not differ materially from those given in Vol. 11, *Fauna of British India*, for *O. m-flavum*.)

"(VIII.24 bei Anlass von Frasers Beschr.) Das erste unvollständige ♀ der Beschreibung von 1854 hat auch Monogr. Gomph. 1857 die *schwarze Aderung* der Spec. *m-flavum* Fraser et Auct., wahrend das ♀ *bistrigatus* 1857 die gelben Queradern des *bistrigatus* Fraser hat.—Danach hatte der Name *bistrigatus* (wie oben 1911) der Spec. mit schwarzer Aderung und langer Valv. v. zu verbleiben und *m-flavum* verfällt der Synonymie; *bistrigatus* Fraser, Selys 1857 et aliis locis, die Form mit gelben Queradern, kurzer Valv. v. (Fig. Monogr.) ist neu zu Benennen."

Presuming that the venation of the wings and the back of the head of the original female of 1854 are all black, then Dr. Ris was undoubtedly correct in his summing up and *m-flavum* becomes a mere synonym of *bistrigatus*. A re-examination of this type would have satisfactorily settled the question, but unfortunately it has been lost. I am indebted to Dr. D. St. Quentin for kindly conducting a search through the Vienna collection and for the loan from the Museum of the only incomplete Gomphine to be found there. He reports that the teneral female of 1857 is still present there, but no other specimens labelled *bistrigatus* or *m-flavum*.

The incomplete Gomphine loaned to me turns out to be a male of *Anisogomphus bivittatus* Selys, and is of interest on account of the labels which it bears—"*bifrenatus* det Brauer," "Hugel," and "Vidit Hagen." There is no such species of Gomphine as *bifrenatus*, but under the description of *G. bivittatus* Selys, in the Synopsis, Selys remarked that if the male attributed to *bivittatus* does not belong to it, then it will form a new species under the name of *bifrenatus*. This specimen therefore appears to be the allotype male of *A. bivittatus*.

Thus in the absence of the type one is compelled to base one's conclusions on descriptions only, and these latter seem sufficiently clear as to show that the incomplete female of 1854 is the actual type of *O. bistrigatus* Hagen, that *O. m-flavum* is a mere synonym for it, and that the teneral female of 1857 is a distinct species, which I now name *Onychogomphus schmidti* in honour of Dr. E. Schmidt, the eminent successor to Dr. Ris.

The synonymy involved is as follows :—

Onychogomphus bistrigatus Hagen, 1854.

Gomphus bistrigatus Hagen, 1854.
Onychogomphus bistrigatus Selys–Hagen, 1857, second female and male.
Onychogomphus m-flavum Selys, 1894, et auct.

Onychogomphus schmidti sp. n.

Onychogomphus bistrigatus Selys–Hagen, 1857, first female.
Onychogomphus bistrigatus Fraser, 1934.

Both sexes of this new species have been fully described in my 1934 volume

of the Fauna quoted above, but since the identification rests largely on the genitalia, which have not been figured heretofore, I give figures for both sexes. Except in teneral specimens, the colour of the basal venation and costal nervure will serve to separate *schmidti* from *bistrigatus*, this being yellow in the former, and black in the latter. *O. schmidti* also has behind the eyes yellow narrowly bordered with black, whereas *bistrigatus* is entirely black.

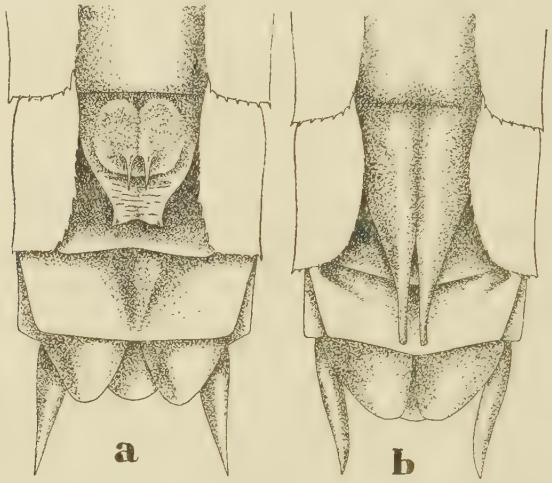


Fig. 1.—Female genitalia of—*a. O. schmidti* sp. n. *b. O. bistrigatus* Hagen.

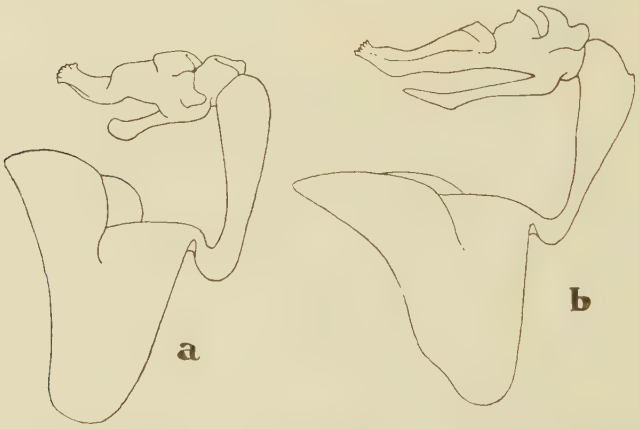


Fig. 2.—Penile organs of—*a. O. schmidti* sp. n. *b. O. bistrigatus* Hagen.

A NEW SPECIES OF CLUNIONINE-CHIRONOMID FROM THE COAST OF SOUTHERN AFRICA (DIPTERA)

By Albert J. Hesse, B.Sc., Ph.D., F.R.E.S.

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With One Text-figure.

The flies described below were collected by Professor T. A. Stephenson while conducting an ecological survey of the marine fauna of the Natal Coasts during 1935. The discovery of a species of *Clunio* on the African Coast is noteworthy in that no species of this interesting genus has as yet been recorded from the coasts of Africa outside the Mediterranean. The genus *Clunio* is a peculiar marine Chironomid of which the known females are apterous and the known larval stages are found associated with marine Algae on the littoral part of the shore between the tide marks. A few other marine Chironomids, such as *Telmatogeton*, *Halirytus* and *Thalassomyia* and their known larval stages, are also peculiar to this ecological environment along the Atlantic, Indian, Antarctic and Pacific Coasts of the Southern Hemisphere. At present only five species of *Clunio* are known. These species, according to Tokunaga's key (1933), are :—*marinus* Hal. (= *bicolor* Kieff.) and *adriaticus* Schin. (= *balearicus* Bezz.) from the European Coasts, *pacificus* Edw. from the Pacific and *setoensis* Tok. and *tsushimensis* Tok. from the coasts of Japan.

The following description of the new species is based on specimens preserved in a dilute solution of formalin :—

Clunio africanus sp. n.

Body predominantly dark, olive-brownish to blackish-brown, with the abdomen the darkest, with the hypopygium the palest and more brownish to yellowish-brown, with the head, thorax above, the metanotum and the pleural and pectoral parts also paler and more brownish than the abdomen, the pleura even slightly paler than thorax above, with a broadish, central, longitudinal, paler and more yellowish-brownish band on disc of thorax which has a very dark, almost black, narrow, central line and another on each side bounding the broad paler band, with the eyes black or blackish, with the scutellum pallid or pale greenish-yellowish and with the hind margins of the abdominal tergites and sternites also pallid or pale greenish-yellowish, with the pteropleural part also tending to be pale or yellowish; antennae with the antennariae and first segments dark or brownish, the second segments pallid or yellowish, with the apices of the second segments and the entire third to ninth segments darkened or more yellowish-brownish, with the tenth or terminal segment pale or yellowish, but sometimes also tending to be slightly darkened; wings subopaque, milky whitish, only the extreme base more brownish, with the veins whitish and rather difficult to make out, with the halteres very pale greenish-yellowish or pallid; legs predominantly pallid, yellowish-whitish or pale greenish-yellowish, the coxae, trochanters and articulating membrane between them yellowish-brownish to brown, with the narrow apical margins of femora, the bases of the tibiae, the narrow apical margins of tibiae, the apical spurs of tibiae, the extreme bases and extreme apices of first tarsal

segments on all the legs, the entire second to fifth tarsal segments of the front and middle legs and the bases and apices of the first segments, the apical parts of the second, third and fourth segments, especially ventrally, and more or less the entire fifth segments on the hind tarsi, yellowish-brownish to brownish, with the claws blackish. *Pubescence* on body very scanty, with a few (about 4) setae in front of wing-bases on each side and with about 6 minute setae in a row on each side of thorax discally along the pseudosutural aspect, with a transverse row of a few erect setae across scutellum and with more conspicuous and denser setae across the middle of the abdominal tergites, excepting the last tergite enclosing base of hypopygium, without any visible setae on clypeus, with the interfacetal hairs on eyes visible, with the setae on legs well developed as in other species of *Clunio*, those in the row on upper surfaces of femora and on hinder parts of the tibiae longer and more conspicuous. *Head* with the interocular space on vertex subequal to, or about, half as broad as the head across eyes and distinctly broader than vertical depth of eyes; eyes rather

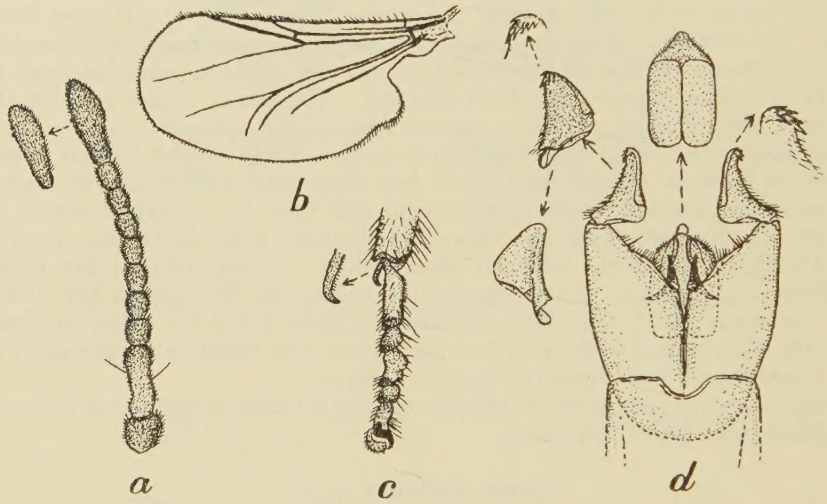

Fig. 1.—*C. africanus* sp. n. *a*. antenna, *b*. wing, *c*. hind tarsus, *d*. hypopygium of ♂, dorsal aspect.

large and coarsely faceted; maxillary palps lobe-like, somewhat flattened, the base narrow, more rapidly narrowed basally on inner side, forming an angular indentation there, the surface of the palps covered with very fine and microscopic hairs and with 2 or 3 short setae on outer side; antennae (fig. 1, *a*) with 11 segments if antennariae be counted in, subequal to length of middle tibiae if antennaria and segment 1 be excluded, with the antennaria much shorter than segment 1, with segment 1 only about half, or even slightly less than half, as long as segment 2, but broader than 2 and broader than rest of segments, roughly cup-shaped and broadest apically, with segment 2 elongate but shorter than the terminal segment, with 2 bristly hairs as shown in figure, with segments 3–9 equal in length, bead-like but slightly longer than broad, with segment 10 elongate, slightly broadened towards apex and there broader than segments 2–9, shaped as shown in figure but more usually like the figure to the left, its apex rounded, the segment distinctly shorter than preceding four combined, the entire antennae covered with fine pubescence. *Wings* (fig. 1, *b*) without any microtrichia on the surface, but with marginal setae which are more conspicuous along costal margin and longer for a short distance beyond the anal lobe, with vein R_{4+5} subequal to R and more or less straight and ending on the costal margin far before apex of

wing, with vein M_{1+2} slightly sinuous and obliterated before wing-tip, with the branches M_{3+4} and Cu_1 also atrophied before the hind margin, with Cu_1 slightly recurved, with the anal angle of wing well developed, with the squamae subopaquely whitish and apparently without any distinct fringe of hairs; halteres with the knobs oval and the pedicel slender. *Abdomen* with the sclerotised margin of last tergite, which encloses base of hypopygium, semicircularly indented medially above (more evident after preparation). *Hypopygium* (fig. 1, *d*) very conspicuous at end of abdomen, broader across apical parts of the basal parts (coxites) and there broader than rest of abdomen; apical segments (styles) somewhat flattened, triangular and scapuliform (seen in dorsal view, from side and from below in left hand figures of *d*), with the apical angle rounded and provided apically above with a few minute, dentate, recurved spines, with the inner upper margin appearing as if folded over and ending nearer inner basal angle in a tooth-like ledge, with the surface of entire styles above covered with fine and minute hairs; aedeagal complex shown in figure *d* from a dorsal aspect and (directly above) in ventral view, with the greater part of the coxites of hypopygium practically bare, setae and hairs being present only on inner aspect anteriorly. *Legs* with the front femora the shortest, the middle tibiae the shortest, with the apical spurs of front and middle tibiae short, the hind ones (fig. 1, *c* to the left) longer, all of them, however, rather strongly curved apically as shown in figure; tarsi with the basal segment the longest, with segments 2–4 the shortest, subequal in length and bead-like on front and middle ones, with the hind tarsus (fig. 1, *c*) having segment 3 longer than 2 and 4, but shorter than segment 1 and apparently a little longer than segment 5, its hind part distinctly dilated and its anterior margin indented; claws curved, hook-shaped, not serrated, each with a semitransparent, minutely spinulated, lamella, extending from base of claw pulvilli-like under each claw and appearing from side as a globule under the claws.

Female and larval stages not obtained.

Length of body : about 1½–2 mm.

Length of wing : about 2 mm.

Breadth of wing : about, or a very little less than, 1 mm.

Loc. Natal Coast (Indian Ocean) : Isipingo (University of Cape Town, Ecological Survey, 13.vii.35). (Type ♂ and 12 ♂♂ paratypes.)

Type in the South African Museum and paratypes in the University of Cape Town.

This species is in certain respects very near *pacificus* described by Edwards from Upolu Island in the Pacific Ocean. Compared with the descriptions and figures of *pacificus*, as given by Edwards (1926) and Oka (1930), this species differs in having the terminal antennal segment very much shorter, much shorter than the preceding 7 segments together and even shorter than preceding 4 segments, in having the antennariae also shorter, wing-vein Cu_1 slightly less recurved and vein M_{1+2} slightly more sinuous, in having the greater part of abdomen dark and the apex of antennal segment 1 and the entire antennal segments 2–9 yellowish-brownish. From the European *marinus* Hal. it differs in having antennal segment 2 shorter than the terminal segment and the latter shorter than preceding 4 segments together, in having wing-vein M_{3+4} not so recurved and Cu_1 not so markedly recurved and vein R_{4+5} subequal or equal to R, and ending further away from wing-tip, in having the apical spurs of tibiae more curved apically and the tips of the styles of hypopygium not so recurved. From the Japanese *setoensis* Tok. it differs in having antennal segment 2 shorter and shorter than terminal segment and the latter shorter than preceding 4 segments together, slightly differently shaped hypopygial styles and without any distinct pubescence on the coxites. From *tsushimensis* Tok. it may be distinguished by the very much shorter terminal antennal segment,

which is not longer than the 7 preceding segments together, by the distinctly less recurved wing-vein Cu_1, more pallid scutellum and apically incised last abdominal tergite.

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